

## SECTION 09451 - INTERIOR STONE FACING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Interior stone facing.

#### 1.3 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Provide interior stone facing capable of withstanding the effects of earthquake motions determined according to the building code in effect for this Project or ASCE 7, "Minimum Design Loads for Buildings and Other Structures," Section 9, "Earthquake Loads," whichever is more stringent.
  - 1. The effective peak velocity-related acceleration for Project's location is 0.40.

#### 1.4 SUBMITTALS

- A. Product Data: For each variety of stone, stone accessory, and other manufactured products specified.
- B. Shop Drawings: Show details of fabrication and installation of interior stone facing, including dimensions and profiles of stone units; arrangement and details of jointing, supporting, anchoring, and bonding interior stone facing; and



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details showing relationship with, attachment to, and reception of related work.

- C. Grout Samples for Initial Selection: Manufacturer's standard samples of actual products showing the full range of colors available.
- D. Stone Samples for Verification: Sets for each color, grade, finish, and variety of stone required; not less than 12 inches (300 mm) square. Include 2 or more samples in each set showing the full range of variations in appearance characteristics expected in completed Work.
- E. Qualification Data: For firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- F. Maintenance Data: For interior stone facing to include in the maintenance manuals specified in Division 1. Include Product Data for stone-care products used or recommended by Installer and names, addresses, and telephone numbers of local sources for products.

## 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer who has completed interior stone facing similar in material, design, and extent to that indicated for Project that has resulted in construction with a record of successful in-service performance.
  - 1. Installer shall assume responsibility for engineering, fabricating, and installing interior stone facing anchoring system.
- B. Fabricator Qualifications: Engage a firm experienced in producing interior stone facing similar to that indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units without delaying the Work.

- C. Source Limitations for Stone: Obtain each variety of stone, regardless of finish, from a single quarry with resources to provide materials of consistent quality in appearance and physical properties and to cut and finish material without delaying the Work.
- D. Source Limitations for Other Materials: Obtain each type of grout, stone accessory, sealant, and other material from a single manufacturer for each product.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project Site in undamaged condition.
- B. Store and handle stone and related materials to prevent deterioration or damage due to moisture, temperature changes, contaminants, corrosion, breaking, chipping, or other causes.

## 1.7 PROJECT CONDITIONS

- A. Do not set stone when air temperature or material temperature is below 50 degrees F (10 degrees C).
- B. Maintain minimum ambient temperatures of 50 degrees F (10 degrees C) during installation and for 7 days after completion, unless higher temperatures are required by fabricator's or supplier's instructions.
- C. Field Measurements: Verify dimensions of construction to receive stone countertops by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

## PART 2 - PRODUCTS



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## 2.1 STONE SOURCES

- A. Available Varieties and Sources: Subject to compliance with requirements, stone varieties that may be incorporated into the Work include, but are not limited to, those indicated in the Stone Schedule at the end of this section.

## 2.2 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to:
1. Organic Adhesive:
    - a. American Olean Tile Co., Inc.
    - b. Bostik.
    - c. Dal-Tile Corp.
  2. Adhesive Latex Add Mixture:
    - a. American Olean Tile Co., Inc.
    - b. Bostik.
    - c. Dal-Tile Corp.
  3. Latex-Portland Cement Grout:
    - a. American Olean Tile Co., Inc.
    - b. Bonsal: W. R. Bonsal Co.
    - c. Dal-Tile Corp.
    - d. Bostik.

## 2.3 STONE, GENERAL

- A. Match samples for variety, color, finish, and other stone characteristics relating to aesthetic effects.
- B. Provide stone that is free of cracks, seams, and starts impairing structural integrity or function.
- C. Provide stone from a single quarry for each variety of stone required.
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- D. Quarry stone in a manner to ensure as-quarried block orientations yield finished stone with required characteristics.

## 2.4 ADHESIVES AND SEALANTS

- A. General: Use only adhesives formulated for stone and ceramic tile and recommended by their manufacturer for the application indicated.
- B. Organic Adhesive: ANSI A136.1, Type I.

## 2.5 GROUT

- A. Grout Colors: Provide colors to match the color of the stone.
- B. Commercial Portland Cement Grout (Sanded): ANSI A118.6, for materials described in H-2.1, for joints **1/8 inch (3 mm)** and wider.

## 2.6 STONE ACCESSORIES

- A. Cleaner: Provide stone cleaners specifically formulated for stone varieties, finishes, and applications indicated as recommended by stone producer. Do not use cleaning compounds containing acids, caustics, harsh fillers, or abrasives.

## 2.7 STONE FABRICATION

- A. General: Fabricate interior stone facing in sizes and shapes required to comply with requirements indicated, including details on Drawings and Shop Drawings.
- B. Cut stone to produce pieces of thickness, size, and shape indicated and to comply with fabrication and construction tolerances recommended by applicable stone association or, if none, by stone source, for faces, edges, beds, and backs.
  - 1. Nominal Thickness of Interior Stone Facing: **3/8 inch (10 mm)**.



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- 2. Dress joints (bed and vertical) straight and at right angle to face, unless otherwise indicated.
  - 3. Quirk-miter corners, unless otherwise indicated. Install anchorage in top and bottom bed joints of corner units.
- C. Contiguous Work: Provide chases, reveals, reglets, openings, and similar features as required to accommodate contiguous work.
- D. Finish exposed faces and edges of stone to comply with requirements indicated for finish under each type of stone required and to match approved samples and mockups.
- E. Pattern Arrangement: Fabricate and arrange panels with veining and other natural markings to comply with the following requirements:
- 1. Arrange panels in blend pattern.
  - 2. Pattern as indicated.
- F. Carefully inspect finished stone units at fabrication plant for compliance with requirements for appearance, material, and fabrication. Replace defective units.
- 1. Grade and mark stone for overall uniform appearance when assembled in place. Natural variations in appearance are acceptable if installed stone units match range of colors and other appearance characteristics represented in approved samples and mockups.

## 2.8 MORTAR AND GROUT MIXES

- A. General: Comply with referenced standards and with manufacturers' written instructions for mix proportions, mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures needed to produce mortar and grout of uniform quality and with optimum performance characteristics.
- 1. Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated. Do not use calcium chloride.



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- 2. Mixing: Combine and thoroughly mix cementitious materials, water, and aggregates in a mechanical batch mixer, unless otherwise indicated. Discard mortar and grout when they have reached initial set.
  - B. Setting Mortar: Comply with ASTM C 270, Proportion Specification.
    - 1. Type: Type N.
  - C. Joint Grout: Comply with mixing requirements of referenced ANSI standards and manufacturer's written instructions.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine surfaces to receive interior stone facing and conditions under which interior stone facing will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of interior stone facing.
  - 1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of interior stone facing.
  - 2. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Advise installers of other work about specific requirements for placement of items to be used by interior stone facing Installer for anchoring and supporting interior stone facing. Furnish installers of other work with Drawings or templates showing locations of these items.
- B. Clean stone surfaces that have become dirty or stained by removing soil, stains, and foreign materials before setting. Clean stone by thoroughly scrubbing with fiber brushes and then drenching with clear water. Use only mild cleaning compounds that contain no caustic or harsh materials or abrasives.



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### 3.3 SETTING STONE, GENERAL

- A. Execute interior stone facing installation by skilled mechanics and employ skilled stone fitters at the site to do necessary field cutting as stone is set.
  - 1. Use power saws to cut stone. Produce lines cut straight and true, with edges eased slightly to prevent snipping.
- B. Contiguous Work: Provide reveals and openings as required to accommodate contiguous work.
- C. Set stone to comply with requirements indicated on Drawings and Shop Drawings. Install supports necessary to secure interior stone facing in place. Set stone accurately in locations indicated with uniform joints and with edges and faces aligned according to established relationships and indicated tolerances.
- D. Provide expansion, control, and pressure-relieving joints.
  - 1. Keep expansion joints free of plaster, grout, and other rigid materials.

### 3.4 CONSTRUCTION TOLERANCES

- A. Variation from Plumb: For vertical lines and surfaces, do not exceed **1/8 inch in 96 inches (3 mm in 2400 mm)**, or **1/4 inch (6 mm)** maximum.
- B. Variation from Level: For lintels, sills, chair rails, horizontal bands, horizontal grooves, and other conspicuous lines, do not exceed **1/8 inch in 10 feet (3 mm in 3 m)**, **1/4 inch in 20 feet (6 mm in 6 m)**, or **3/8 inch (10 mm)** maximum.
- C. Variation of Linear Building Line: For position shown in plan and related portion of walls and partitions, do not exceed **1/8 inch in 96 inches (3 mm in 2400 mm)**, **1/4 inch in 20 feet (6 mm in 6 m)**, or **3/8 inch (10 mm)** maximum.
- D. Variation in Cross-Sectional Dimensions: For thickness of walls from dimensions indicated, do not exceed plus or minus **1/8 inch (3 mm)**.
- E. Variation in Joint Width: Do not vary joint thickness more than **1/16 inch (1.5 mm)** or one-fourth of nominal joint width, whichever is less.



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- F. Variation in Plane between Adjacent Panels (Lipping): Do not exceed  $1/32$ -inch (0.8-mm) difference between planes of adjacent units.

### 3.5 INSTALLING INTERIOR STONE FACING AND TRIM

- A. Erect interior stone facing and trim plumb and true with uniform joint widths and accurately aligned. Use temporary shims to maintain joint width. Remove shims before pointing or grouting.
- B. Point and grout joints after setting. Use mortar or grout type and color indicated. Tool joints uniformly and smoothly with plastic tool.

### 3.6 ADJUSTING AND CLEANING

- A. Remove and replace interior stone facing of the following description:
1. Broken, chipped, stained, or otherwise damaged stone. Stone may be repaired if methods and results are approved by Owner.
  2. Defective joints and seams.
  3. Interior stone facing not complying with other requirements indicated.
- B. Replace in a manner that results in interior stone facing's matching approved samples, complying with other requirements, and showing no evidence of replacement.
- C. In-Progress Cleaning: Clean interior stone facing as work progresses. Remove mortar and grout smears before tooling joints.
- D. Clean interior stone facing not less than 6 days after completion of grouting and pointing, using clean water and soft rags or stiff-bristle fiber brushes. Do not use wire brushes, acid-type cleaning agents, cleaning compounds with caustic or harsh fillers, or other materials or methods that could damage stone.

### 3.7 PROTECTION

- A. Protect stone surfaces, edges, and corners from construction damage. Use securely fastened untreated wood, plywood, or heavy cardboard to prevent damage.
- B. Before inspection for Substantial Completion, remove protective covering and clean surfaces.

### 3.8 STONE SCHEDULE

- A. Stone Type S: Provide stone classified in the slate group and as follows:
  - 1. Variety and Source:
    - a. "MTD," Slate, Classic Multi-Color, Mountain Tile Distributors, 406-721-6696.
    - b. Classic Multi-Color Slate, Montana Marble & Granite, Choteau, Montana, 406-466-5965.
  - 2. Installation Description: Wall wainscot application. Modified thin-set.
  - 3. TCA Installation: W243-95 and W244-95.
  - 4. Special Requirements: Pre-seal stone or utilize grout release per manufacturer's recommendations.
  - 5. Joint Width: ¼ inch (6 mm).
  - 6. Stone Tile Size: 6 by 12 inch (150 by 300) at base, 12 by 12 inch (300 by 300) at field.
- B. Stone Type S (accent): Provide stone classified in the slate group and as follows:
  - 1. Variety and Source:
    - a. "MTD," 6x12 (150x300) Slate, Classic Multi-Color, Mountain Tile Distributors, 406-721-6696.
    - b. Classic Multi-Color Slate, Montana Marble & Granite, Choteau, Montana, 406-466-5965.



2. Installation Description: Wainscot cap.
3. TCA Installation: W243-95.
4. Special Requirements: Pre-seal stone or utilize grout release per manufacturer's recommendations.
5. Special Design: custom etched pattern.
  - a. Pattern: Blackfeet Running Design; four (4) tile repeat.
6. Joint Width: ¼ inch (6 mm).
7. Stone Tile Size: 6 by 12 inch (150 by 300).

END OF SECTION 09451

